# Catch me if you can!

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Definition of Infectious Diseases:

- Are caused by microorganisms such as bacteria, viruses, and fungi
- Can be transmitted human-human and human-animal
- Most affect third world countries

Top 10 Most common diseases that kill

- 1. Ischemic heart disease
- 2. Cerebrovascular disease
- 3. *Lower Respiratory infections
- 4. *HIV/AIDS
- 5. Chronic Obstructive Pulmonary Disease
- 6. Perinatal conditions
- 7. *Diarrheal diseases
- 8. *Tuberculosis
- 9. *Malaria
- 10.Trachea, bronchus, lung cancers
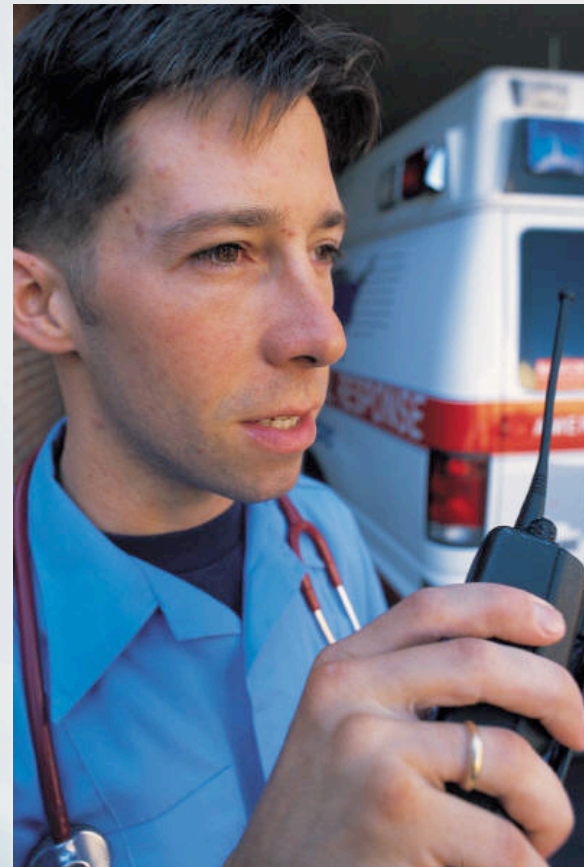
Recent Diseases in our World

- Recently (January), 115 people have died of Avian Flu

- 2007: A business man flying from US to various countries in Europe as a TB carrier was detained. A fellow passenger was affected.

Problems with I.D.

- The infectious disease itself and mutation
- Resources (and lack thereof)
- Environment (climate and ecology)
- Time
- Lack of understanding
- Ethical constraints on research

Ways we have been tackling the problems:

- Vaccines
- Antibiotics

- Pharmaceutical drugs

- Not developed for all
- Resistant strains (e.g. penicillin resistance)
- Allergies to antibiotics
- Painful Side effects, allergies, also resistance

Proposed Solutions:

Bioengineer Bacteria

- Engineer bacteria to attack disease microbes (like was seen in the IGEM project)
- Attack!!

The RealCaos
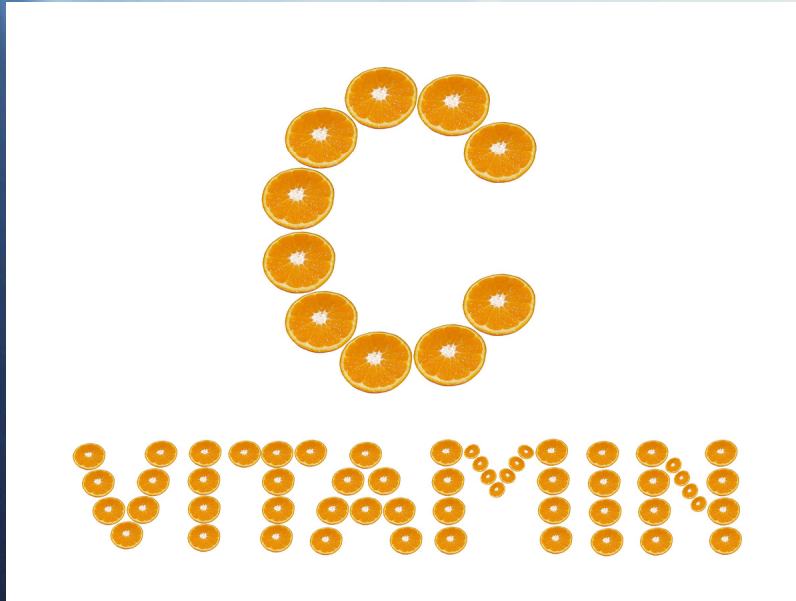Gratification Research
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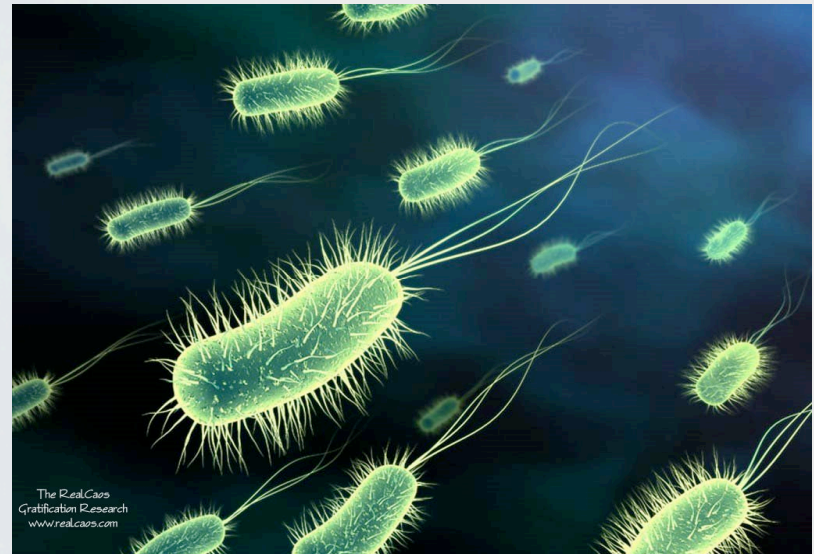
Engineer Viruses

- Engineer Bacteriophages (bacteria-specific viruses) to attack target bacteria

Boost Immunity

- Vitamin-C producing bacteria that live in your small intestine (symbiotic relationship)
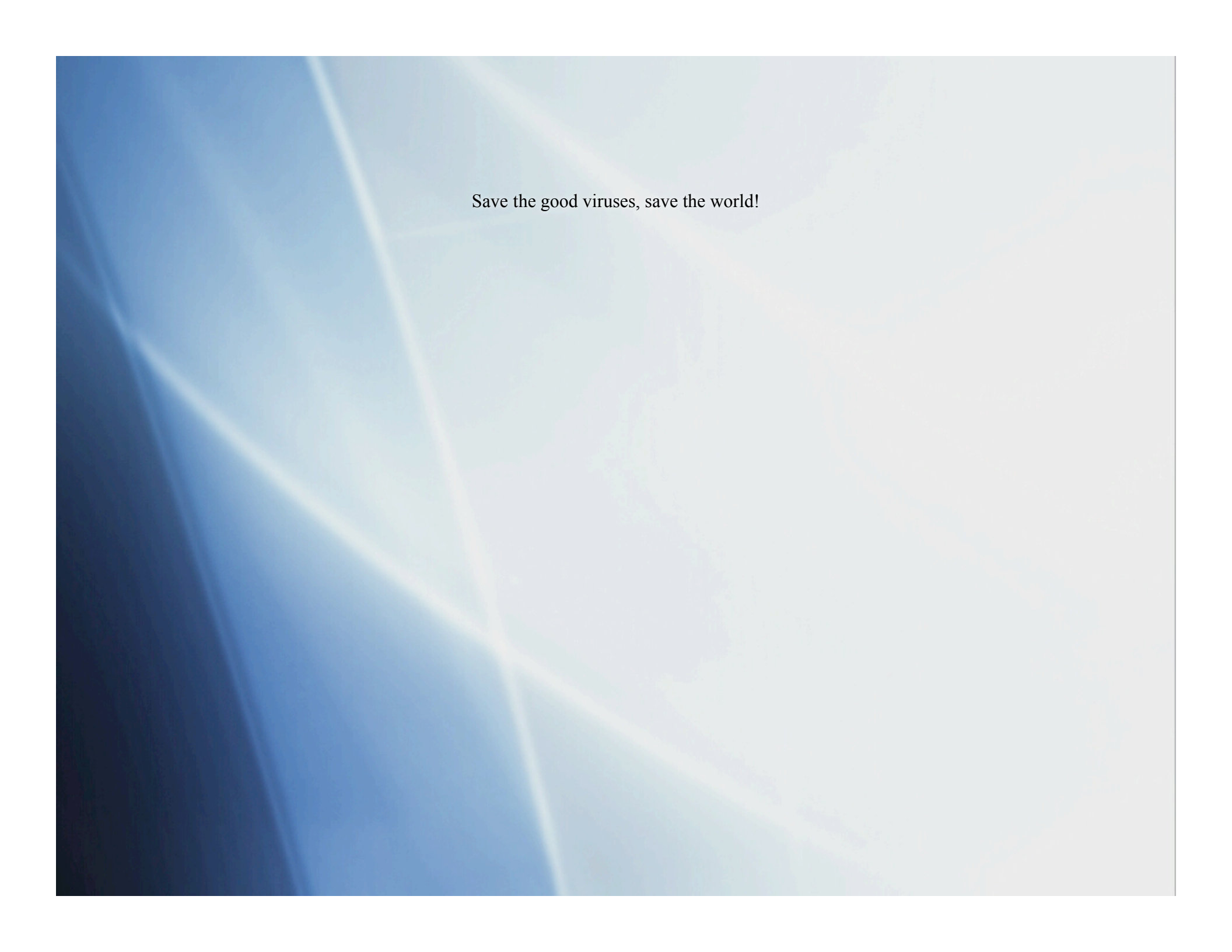
Detect Virus infection mode

- And design compound
  to inhibit different
  areas of the virus's
  infection

Connect Hospitals to Researchers

- When patient comes in with new virus, a sophisticated screening system will be able to identify protein coat and infection mode, a vaccine can be developed from the blueprint, and this information can be transferred to other hospitals.

New innovative solutions! (that you create!)

Save the good viruses, save the world!